To

ASSISTANT EXECUTIVE ENGINEER
VIDYARANYAPURA SUB DIVISION
BBMP, Bangalore

Date: 25.11.2023

Subject : Package No.06 Consists of 14 Works.

JOB CODE :- 009-23-000003
WORK ORDER NO:- BBMP/EE/BTP/WO/76/22-23

Dear Sir,

With Reference to above name of Work, On 22.11.2023, Inspection Was Carried at Site at the Quality Assurance/Quality Control, BBMP, Bangalore and Few Observations were made during the Inspection. According to that on 22.11.2023, BC & DBM Test and Rebound Hammer Test was conducted in Site in the Presence of Engineer in charge of the work. 10TH & PART BILL duly verified and certified that the work is satisfactory and for a Gross value of Rs.98,01,709.00/-(Rs. Ninety Eight Lakh(s) One Thousand Seven Hundred and Nine Only). The Result submitting for further need full Action.

Thanking You

For Mecadez Core Technologies Pvt Ltd.

Authorized Signature

TEST REPORT
NON DESTRUCTIVE TEST

REBOUND HAMMER TEST RESULTS

Date: 22-11-2023

Name of Work: Package No.06 Consists of 14 Works

Name of the Contractor: M/s SMLP Asphalts

Work Order No: BBMP/EE/BTP/WO/76/22-23

Job Code: 009-23-000003

10th & Part Bill

Sl. No.	Floor level / Structural Member /Identification	GRADE OF CONCRETE	Position / Elevation (Cm)	Rebound Hammer Number	Avg. Rebound Hammer Number	Compressive Strength of Concrete (N/mm^2)	Impact Direction
Sample Tested Location: 1st D cross Veeranna Layout							
1	CC Drain	M20	Location-1	40 36 38 36 40 36	38	35-37	Horizontal
Sample Tested Location: 1st D cross Veeranna Layout							
2	RCC Covering Slab	M20	Location-2	32 30 28 32 32 32	31	30-32	Vertical down
Sample Tested Location: 1st cross Road							
3	RCC Covering Slab	M20	Location-3	40 40 48 38 28 36	38	42-44	Vertical down

Consultants

TEST REPORT

BITUMINOUS CONCRETE CORE CUTTING TEST RESULTS

Date: 22-11-2023

Name of Work : Package No.06 (Consists of 14 Works)

Name of the Contractor : M/s SMLP Asphalts

Work Order No : BBMP/EE/BTP/WO/76/22-23

Job Code : 009-23-000003

10th & Part Bill

Sl. No.	Road Identification	Location	Dia of Core (mm)	Depth (mm)	Minimum Thickness (mm)
Sample Tested Location: 1st D Cross road Veeranna layout					
1	1st D Cross road	Location-1	100	BC=40mm DBM=40mm	BC=40mm DBM=50mm
Sample Tested Location: 1st D Cross road Veeranna layout					
2	1st D Cross road	Location-3	100	BC=30mm DBM=45mm	BC=40mm DBM=50mm
Sample Tested Location: Infront of House No. 29 1st C Cross road Veeranna layout					
3	1st C Cross road	Location-3	100	BC=40mm DBM=40mm	BC=40mm DBM=50mm
Sample Tested Location: Infront of House No. 29 1st C Cross road Veeranna layout					
4	1st C Cross road	Location-3	100	BC=40mm DBM=50mm	BC=40mm DBM=50mm

Consultants

Test Report
Binder Content and Mix Gradation
10th & Part Bill

Project Name	Package No.06 Consists of 14 Works
Client	Executive Engineer - Byatarayanapura Division
Mix Type	Bituminous Concrete (BC)
Contractor	M/s SMLP Asphalts
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	1st D Cross road Veeranna layout
Sample No	1
Tested Date	25-Nov-2023

Sl. No.	Description	Unit	Computation	Test Result
1	Weight of Empty bowl before Extraction (E)	gm	Eb	1080
2	Weight of bowl + Sample before extraction (w_s)	gm	w_{sb}	1575
3	Weight of Sample taken for the test (S_b)	gm	$S_b = w_{sb} - Eb$	495
4	Weight of bowl + Sample after extraction (w_s)	gm	w_{sa}	1548
5	Weight of Sample after extraction (i.e. washed aggregates)	gm	$S_a = w_{sa} - Eb$	468
6	Weight of Filter paper before extraction (F_b)	gm	F_b	2
7	Weight of Filter paper after extraction (F_a)	gm	F_a	2.6
8	Weight of filler on filter paper (F_d)	gm	$F_d = F_b - F_a$	0.6
9	Weight of Bitumen without considering Filter paper (W_b)	gm	W_b	27.0
10	Weight of the Bitumen with considering Filter paper (W_a)	gm	$W_a = w_b + F_d$	27.6
11	Percentage of the Bitumen (i.e. Binder Content) ($\%_B$)	(%)	W_a/ SbX100	5.58

Sl. No.	I.S. Sieve size (mm)	Weight Retained (gm)	Cum. Wt. Retained	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	19.00	0.00	0	0.00	100.00	100.00	Gradation satisfies the MORT&H Grade II Specification for Bituminous Concrete
2	13.20	25.15	25.15	5.37	94.63	90-100	
3	9.50	63.20	88.35	18.88	81.12	70-88	
4	4.75	59.37	147.72	31.56	68.44	53-71	
5	2.36	57.09	204.81	43.76	56.24	42-58	
6	1.18	46.55	251.36	53.71	46.29	34-48	
7	0.60	48.46	299.82	64.06	35.94	26-38	
8	0.30	46.41	346.23	73.98	26.02	18-28	
9	0.15	42.00	388.23	82.96	17.04	12-20	
10	0.075	38.13	426.36	91.10	8.90	4-10	
11	Pan	22.91					

Mecadez Core Technologies Private Limited

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Test Report
Binder Content and Mix Gradation
10th & Part Bill

Project Name	Package No.06 Consists of 14 Works
Client	Executive Engineer - Byatarayanapura Division
Mix Type	Bituminous Concrete (BC)
Contractor	M/s SMLP Asphalts
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	1st D Cross road Veeranna layout
Sample No	2
Tesed Date	25-Nov-2023

Sl. No.	Description	Unit	Computation	Test Result
1	Weight of Empty bowl before Extraction (E)	gm	Eb	1080
2	Weight of bowl + Sample before extraction (w_s)	gm	w_{sb}	1661
3	Weight of Sample taken for the test (S_b)	gm	$S_b = w_{sb} - Eb$	581
4	Weight of bowl + Sample after extraction (w_s)	gm	w_{sa}	1631
5	Weight of Sample after extraction (i.e. washed aggregates)	gm	$S_a = w_{sa} - Eb$	551
6	Weight of Filter paper before extraction (F_b)	gm	F_b	2
7	Weight of Filter paper after extraction (F_a)	gm	F_a	3.7
8	Weight of filler on filter paper (F_d)	gm	$F_d = F_b - F_a$	1.7
9	Weight of Bitumen without considering Filter paper (W_b)	gm	W_b	30.0
10	Weight of the Bitumen with considering Filter paper (W_a)	gm	$W_a = w_b + F_d$	31.7
11	Percentage of the Bitumen (i.e. Binder Content) ($\%_B$)	(%)	W_a/ SbX100	5.46

Sl. No.	I.S. Sieve size (mm)	Weight Retained (gm)	Cum. Wt. Retained	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	19.00	0.00	0	0.00	100.00	100.00	Gradation satisfies the MORT&H Grade II Specification for Bituminous Concrete
2	13.20	39.82	39.82	7.23	92.77	90-100	
3	9.50	96.16	135.98	24.68	75.32	70-88	
4	4.75	99.34	235.32	42.71	57.29	53-71	
5	2.36	48.21	283.53	51.46	48.54	42-58	
6	1.18	55.72	339.25	61.57	38.43	34-48	
7	0.60	44.62	383.87	69.67	30.33	26-38	
8	0.30	55.25	439.12	79.70	20.30	18-28	
9	0.15	41.02	480.14	87.14	12.86	12-20	
10	0.075	36.11	516.25	93.69	6.31	4-10	
11	Pan	22.91					

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Test Report
Binder Content and Mix Gradation
10th & Part Bill

Project Name	Package No.06 Consists of 14 Works
Client	Executive Engineer - Byatarayanapura Division
Mix Type	Bituminous Concrete (BC)
Contractor	M/s SMLP Asphalts
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Infront of House No. 29 1st C Cross road Veeranna layout
Material	Bituminous Concrete mix
Sample No	3
Tesed Date	25-Nov-2023

Sl. No.	Description	Unit	Computation	Test Result
1	Weight of Empty bowl before Extraction (E)	gm	Eb	1080
2	Weight of bowl + Sample before extraction (w_s)	gm	w_{sb}	1613
3	Weight of Sample taken for the test (S_b)	gm	$S_b = w_{sb} - Eb$	533
4	Weight of bowl + Sample after extraction (w_s)	gm	w_{sa}	1585
5	Weight of Sample after extraction (i.e. washed aggregates)	gm	$S_a = w_{sa} - Eb$	505
6	Weight of Filter paper before extraction (F_b)	gm	F_b	2
7	Weight of Filter paper after extraction (F_a)	gm	F_a	3.1
8	Weight of filler on filter paper (F_d)	gm	$F_d = F_b - F_a$	1.1
9	Weight of Bitumen without considering Filter paper (W_b)	gm	W_b	28.0
10	Weight of the Bitumen with considering Filter paper (W_a)	gm	$W_a = w_b + F_d$	29.1
11	Percentage of the Bitumen (i.e. Binder Content) ($\%_B$)	(%)	$W_a / SbX100$	5.46

Sl. No.	LS. Sieve size (mm)	Weight Retained (gm)	Cum. Wt. Retained	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	19.00	0	0	0.00	100.00	100	Gradation satisfies the MORT&H Grade II Specification for Bituminous Concrete
2	13.20	28.30	28.30	5.60	94.40	90-100	
3	9.50	51.37	79.67	15.78	84.22	70-88	
4	4.75	147.16	226.83	44.92	55.08	53-71	
5	2.36	52.82	279.65	55.38	44.62	42-58	
6	1.18	19.43	299.08	59.22	40.78	34-48	
7	0.60	25.25	324.33	64.22	35.78	26-38	
8	0.30	51.32	375.65	74.39	25.61	18-28	
9	0.15	42.85	418.50	82.87	17.13	12-20	
10	0.075	61.63	480.13	95.08	4.92	4-10	
11	Pan	16.11					

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Test Report
Binder Content and Mix Gradation
10th & Part Bill

Project Name	Package No.06 Consists of 14 Works
Client	Executive Engineer - Byatarayanapura Division
Mix Type	Bituminous Concrete (BC)
Contractor	M/s SMLP Asphalts
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Infront of House No. 29 1st C Cross road Veeranna layout
Sample No	4
Tesed Date	25-Nov-2023

Sl. No.	Description	Unit	Computation	Test Result
1	Weight of Empty bowl before Extraction (E)	gm	Eb	1080
2	Weight of bowl + Sample before extraction (w_{sb})	gm	w_{sb}	1600
3	Weight of Sample taken for the test (S_b)	gm	$S_b = w_{sb} - Eb$	520
4	Weight of bowl + Sample after extraction (w_{sa})	gm	w_{sa}	1573
5	Weight of Sample after extraction (i.e. washed aggregates)	gm	$S_a = w_{sa} - Eb$	493
6	Weight of Filter paper before extraction (F_b)	gm	F_b	2
7	Weight of Filter paper after extraction (F_a)	gm	F_a	3.5
8	Weight of filler on filter paper (F_d)	gm	$F_d = F_b - F_a$	1.5
9	Weight of Bitumen without considering Filter paper (W_b)	gm	W_b	27.0
10	Weight of the Bitumen with considering Filter paper (W_a)	gm	$W_a = w_b + F_d$	28.5
11	Percentage of the Bitumen (i.e. Binder Content) ($\%_B$)	(%)	W_a/ SbX100	5.48

Sl. No.	I.S. Sieve size (mm)	Weight Retained (gm)	Cum. Wt. Retained	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	19.00	0.00	0	0.00	100.00	100.00	Gradation satisfies the MORT&H Grade II Specification for Bituminous Concrete
2	13.20	32.84	32.84	6.66	93.34	90-100	
3	9.50	94.17	127.01	25.76	74.24	70-88	
4	4.75	97.28	224.29	45.49	54.51	53-71	
5	2.36	48.65	272.94	55.36	44.64	42-58	
6	1.18	45.57	318.51	64.61	35.39	34-48	
7	0.60	37.29	355.80	72.17	27.83	26-38	
8	0.30	35.85	391.65	79.44	20.56	18-28	
9	0.15	37.24	428.89	87.00	13.00	12-20	
10	0.075	36.00	464.89	94.30	5.70	4-10	
11	Pan	22.91					

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Test Report
Binder Content and Mix Gradation
10th & Part Bill

Project Name	Package No.06 Consists of 14 Works
Client	Executive Engineer - Byatarayanapura Division
Mix Type	Dence Graded Bituminous Mecadam (DBM)
Contractor	M/s SMLP Asphalts
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	1st D Cross road Veeranna layout
Tested Date	25-Nov-2023

Sl. No.	Description	Unit	Computatio	Test Result
1	Weight of Empty bowl before Extraction (E)	gm	Eb	1080
2	Weight of bowl + Sample before extraction (w_s)	gm	w_{sb}	1602
3	Weight of Sample taken for the test (S_b)	gm	$S_b = w_{sb} - Eb$	522
4	Weight of bowl + Sample after extraction (w_s)	gm	w_{sa}	1579
5	Weight of Sample after extraction (i.e. washed	gm	$S_a = w_{sa} - Eb$	499
6	Weight of Filter paper before extraction (F_b)	gm	F_b	2.5
7	Weight of Filter paper after extraction (F_a)	gm	F_a	3.0
8	Weight of filler on filter paper (F_d)	gm	$F_d = F_b - F_a$	0.5
9	Weight of Bitumen without considering Filter paper	gm	W_b	23.0
10	Weight of the Bitumen with considering Filter	gm	$W_a = w_b + F_d$	23.5
11	Percentage of the Bitumen (i.e. Binder Content)	(%)	W_a/ SbX100	4.50

Sl. No.	I.S. Sieve size (mm)	Weight Retained (gm)	Cumulative weight Retained	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	37.50	0	0.00	0.00	100.00	100	Gradation satisfies the MORT&H Specification for Dense graded Bituminous Macadam
2	26.5	33.54	33.54	6.72	93.28	90-100	
3	19	75.49	109.03	21.85	78.15	71-95	
4	13.2	45.23	154.26	30.91	69.09	56-80	
5	4.75	96.17	250.43	50.19	49.81	38-54	
6	2.36	63.46	313.89	62.90	37.10	28-42	
7	0.3	94.60	408.49	81.86	18.14	7-21	
8	0.075	65.04	473.53	94.90	5.10	2-8	
9	Pan	25.5					

Note:

i. The results indicated above are based on the tests carried out on the sample at site.
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For Mecadez Core Technologies Private Limited

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Test Report
Binder Content and Mix Gradation
10th & Part Bill -

Project Name	Package No.06 Consists of 14 Works
Client	Executive Engineer - Byatarayanapura Division
Mix Type	Dence Graded Bituminous Mecadam (DBM)
Contractor	M/s SMLP Asphalts
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	1st D Cross road Veeranna layout
Tested Date	25-Nov-2023

Sl. No.	Description	Unit	Computation	Test Result
1	Weight of Empty bowl before Extraction (E)	gm	Eb	1080
2	Weight of bowl + Sample before extraction (w_s)	gm	w_{sb}	1673
3	Weight of Sample taken for the test (S_b)	gm	$S_b = w_{sb} - Eb$	593
4	Weight of bowl + Sample after extraction (w_s)	gm	w_{sa}	1647.0
5	Weight of Sample after extraction (i.e. washed	gm	$S_a = w_{sa} - Eb$	567.0
6	Weight of Filter paper before extraction (F_b)	gm	F_b	3.0
7	Weight of Filter paper after extraction (F_a)	gm	F_a	3.8
8	Weight of filler on filter paper (F_d)	gm	$F_d = F_b - F_a$	0.8
9	Weight of Bitumen without considering Filter	gm	W_b	26.0
10	Weight of the Bitumen with considering Filter	gm	$W_a = w_b + F_d$	26.8
11	Percentage of the Bitumen (i.e. Binder Content)	(%)	W_a/ SbX100	4.52

Sl. No.	I.S. Sieve size (mm)	Weight Retained (gm)	Cumulative weight Retained	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	37.50	0	0.00	0.00	100.00	100	Gradation satisfies the MORT&H Specification for Dense graded Bituminous Macadam
2	26.5	27.62	27.62	4.87	95.13	90-100	
3	19	73.91	101.53	17.91	82.09	71-95	
4	13.2	65.10	166.63	29.39	70.61	56-80	
5	4.75	112.18	278.81	49.17	50.83	38-54	
6	2.36	80.42	359.23	63.36	36.64	28-42	
7	0.3	89.27	448.50	79.10	20.90	7-21	
8	0.075	98.15	546.65	96.41	3.59	2-8	
9	Pan	20.4					

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Test Report
Binder Content and Mix Gradation
10th & Part Bill

Project Name	Package No.06 Consists of 14 Works
Client	Executive Engineer - Byatarayanapura Division
Mix Type	Dence Graded Bituminous Mecadam (DBM)
Contractor	M/s SMLP Asphalts
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Infront of House No. 29 1st C Cross road Veeranna layout
Tested Date	25-Nov-2023

Sl. No.	Description	Unit	Computation	Test Result
1	Weight of Empty bowl before Extraction (E)	gm	Eb	1080
2	Weight of bowl + Sample before extraction (w_s)	gm	w_{sb}	1471
3	Weight of Sample taken for the test (S_b)	gm	$S_b = w_{sb} - Eb$	391
4	Weight of bowl + Sample after extraction (w_s)	gm	w_{sa}	1454
5	Weight of Sample after extraction (i.e. washed	gm	$S_a = w_{sa} - Eb$	374
6	Weight of Filter paper before extraction (F_b)	gm	F_b	3.0
7	Weight of Filter paper after extraction (F_a)	gm	F_a	4.0
8	Weight of filler on filter paper (F_d)	gm	$F_d = F_b - F_a$	1.0
9	Weight of Bitumen without considering Filter	gm	W_b	17.0
10	Weight of the Bitumen with considering Filter	gm	$W_a = w_b + F_d$	18.0
11	Percentage of the Bitumen (i.e. Binder Content)	(%)	W_a/ SbX100	4.60

Sl. No.	I.S. Sieve size (mm)	Weight Retained (gm)	Cumulative weight Retained	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	37.50	0	0.00	0.00	100.00	100	Gradation satisfies the MORT&H Specification for Dense graded Bituminous Macadam
2	26.5	24.95	24.95	6.67	93.33	90-100	
3	19	75.08	100.03	26.75	73.25	71-95	
4	13.2	52.27	152.30	40.72	59.28	56-80	
5	4.75	43.62	195.92	52.39	47.61	38-54	
6	2.36	80.09	276.01	73.80	26.20	28-42	
7	0.3	34.52	310.53	83.03	16.97	7-21	
8	0.075	35.30	345.83	92.47	7.53	2-8	
9	Pan	28.2					

Note:

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Test Report
Binder Content and Mix Gradation
10th & Part Bill

Project Name	Package No.06 Consists of 14 Works
Client	Executive Engineer - Byatarayanapura Division
Mix Type	Dence Graded Bituminous Mecadam (DBM)
Contractor	M/s SMLP Asphalts
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Infront of House No. 29 1st C Cross road Veeranna layout
Tested Date	25-Nov-2023

Sl. No.	Description	Unit	Computation	Test Result	
1	Weight of Empty bowl before Extraction (E)	gm	Eb	1080	
2	Weight of bowl + Sample before extraction (w_s)	gm	w_{sb}	1679	
3	Weight of Sample taken for the test (S_b)	gm	$S_b = w_{sb} - Eb$	599	
4	Weight of bowl + Sample after extraction (w_s)	gm	w_{sa}	1653	
5	Weight of Sample after extraction (i.e. washed	gm	$S_a = w_{sa} - Eb$	573	
6	Weight of Filter paper before extraction (F_b)	gm	F_b	3.0	
7	Weight of Filter paper after extraction (F_a)	gm	F_a	4.0	
8	Weight of filler on filter paper (F_d)	gm	$F_d = F_b - F_a$	1.0	
9	Weight of Bitumen without considering Filter	gm	W_b	26.0	
10	Weight of the Bitumen with considering Filter	gm	$W_a = w_{b+} F_d$	27.0	
11	Percentage of the Bitumen (i.e. Binder Content)	(%)	W_a/ SbX100	4.51	

Sl. No.	I.S. Sieve size (mm)	Weight Retained (gm)	Cumulative weight Retained	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	37.50	0	0.00	0.00	100.00	100	Gradation satisfies the MORT&H Specification for Dense graded Bituminous Macadam
2	26.5	27.34	27.34	4.77	95.23	90-100	
3	19	62.21	89.55	15.63	84.37	71-95	
4	13.2	70.11	159.66	27.86	72.14	56-80	
5	4.75	114.50	274.16	47.85	52.15	38-54	
6	2.36	73.05	347.21	60.60	39.40	28-42	
7	0.3	115.65	462.86	80.78	19.22	7-21	
8	0.075	88.36	551.22	96.20	3.80	2-8	
9	Pan	21.8					

Note:

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